Transform your electrical wiring
into a high speed network at home or business

# PowerGrid 9020

## Quick User Guide

COMTREND

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# Introduction

The PowerGrid 9020 (PG9020) Powerline Ethernet adapter you have just acquired is part of Comtrend's Powerline family:

- PG9020-The Current Model
- PG902 – Legacy
- DH10PF – Legacy
- PG922 Power Strip – For Multiple Powerline Connections

This quick user guide will provide you with the basic knowledge to start using your new PG9020 in just minutes. For more advanced options we recommend you visit our website and download the user manual at **www.comtrend.com**

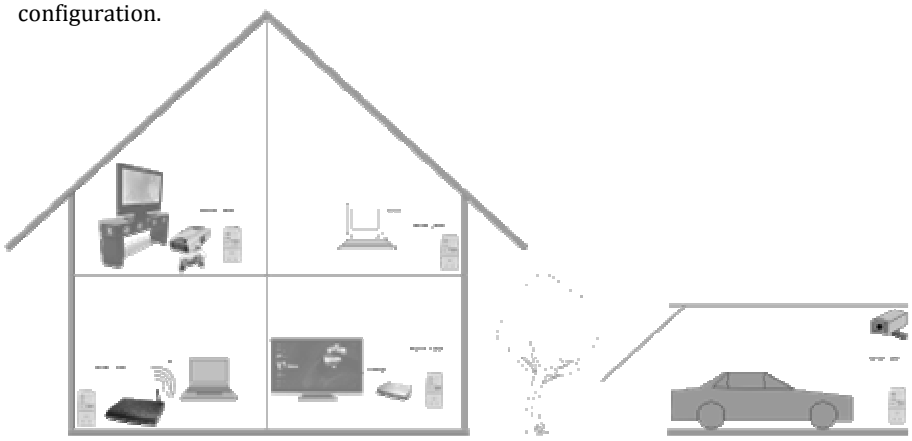
## The perfect complement for a Wi-Fi connection

Powerline adapters are the ideal way of creating a home network or complementing an existing Wi-Fi connection.

By providing a secure high speed connection and great service quality, Powerlines allow you to watch Standard and High Definition (HD) movies as well as play online games without interruption or pixilation; share photos, music and other media stored on a PC or compatible storage device anywhere in your home.

Powerline Adapters will help you reach those areas of your home where Wi-Fi signal is either too weak or cannot reach.

Other usages of Powerline adapters include IP-CCtv surveillance cameras, setting up an office network without the need to add more wires or rewire if you change your office configuration.



## Package content

The following items are included in your PG9020 package:

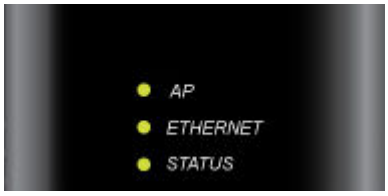
- A pair of PG9020 adapters
- One Ethernet cable
- One copy of this user guide

## LEDs and Buttons:

The PG9020 has been designed to be as user friendly as possible. There are just three LED lights and two buttons on the unit. They are described on this and the following page.

### LEDs

1. AP
2. ETHERNET
3. STATUS




| LED | Colour |
|---|---|
| **AP** | **Green constant**: Powerline is connected as the Access Point (AP) |
| | **Green blinking**: the Powerline network has established a connection and finished its configuration. |
| **ETHERNET** | **Green**: Ethernet Linked |
| **STATUS** | **Red blinking:** Quickly blanking 2 times in each 5 Secs. while the device turn into Standby Mode |
| | **Red**: the connection speed is between 1 and 4 Megabits per second |
| | **Orange**: the connection speed is between 4 and 10 Megabits per second |
| | **Green**: the connection speed is more than 10 Megabits per second |

### Buttons

1. **CONFIG/RESET:**
   This button is used to "Extend your current Powerline network" a "Factory Reset" or to turn the LEDs lights off.

## Functions

| Button | Action | Result |
|---|---|---|
| **CONFIG/REST** | Press for one (1) second.<br>First time: LEDs are turned OFF<br>Second time: LEDs are turned ON | All LEDs will turn off, but the Powerline will still be working. Great if you are watching movies in a dark room |
| | Press for five (5) seconds<br>Access Configuration mode | See page 6 for more information on how to add extra Powerline adapters to your network |
| | Press for ten (10) seconds<br>Performs a Factory setting | This will return the adapter to its original factory settings. |

## Ethernet Port:

PowerLines use an Ethernet port to connect through an Ethernet cable to the device you wish to add to your network. One end of the Ethernet cable is connected to the Powerline adapter, while the other end is connected to your device.

## Front and rear plugs

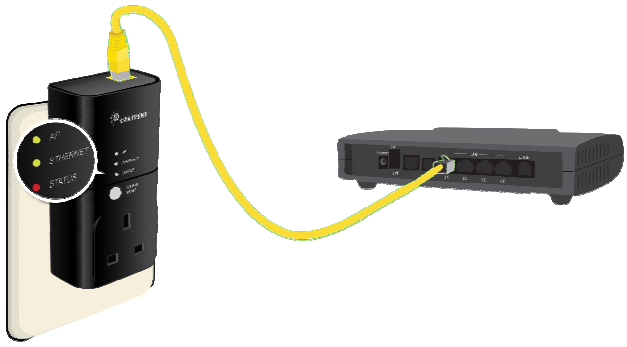
Comtrend Powerline adapters are the first ones in the UK market to bring a fully BS1363 certified female plug; so choosing a Comtrend Powerline PG9020 means you can still safely use your electrical outlet.

## How to install the PowerGrid 9020

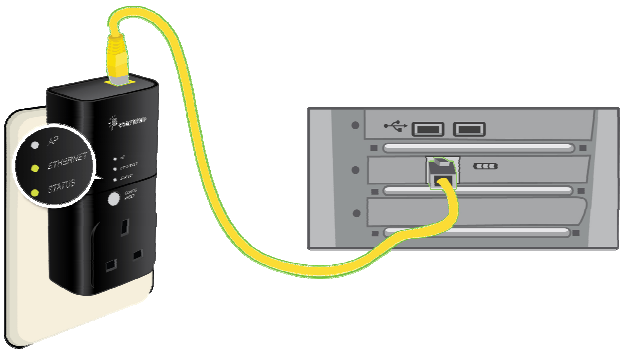
Comtrend's PG9020 starter kit, supplied in pairs, comes ready to use; the Powerlines adapters are paired in our factory so they will recognize each other, which makes setup this easy:

1. Plug both PG9020 adapters into an electrical socket
    a. One next your router (or modem)
    b. One next to the device you will connect to your network
2. The STATUS LED on both PG9020 will light up RED
3. When the STATUS LEDs are both green the PG9020 are ready to use

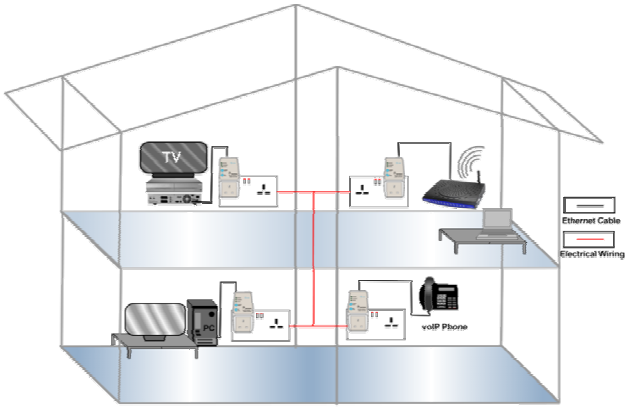
Pick the PG9020 adapter with a serial number ending with the letter "A". The serial number can be found on the label at the back of the adapter. This is the Access Point (AP). Connect the AP to your router with an Ethernet cable, as shown here.




Connect the other PG9020 to your Computer, Game Console, Set Top Box or other network device using an Ethernet cable. This is the End Point (EP).

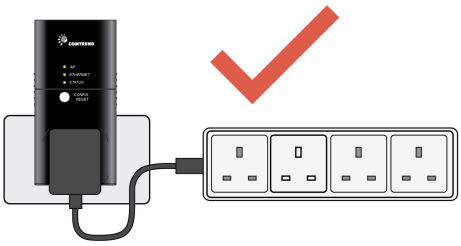


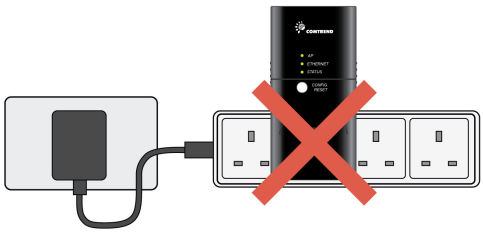
Shortly, you will see the Ethernet LED blinking; this indicates that there is data traffic going through the PG9020. You are now ready to start using your network.




## How to use a power strip with the PG9020

If you are planning to use a power strip we recommend that you plug the power strip in to the Powerline and not the Powerline into the power strip. If you must plug your adapter into a power strip, we suggest you use a basic power strip as the more advanced ones have a filter that can interfere with the Powerline signal.



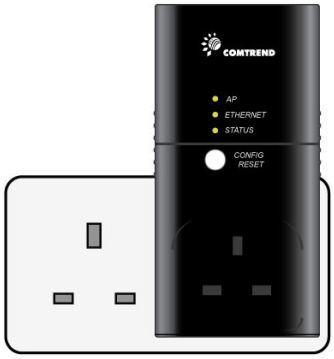


## How to add a new Powerline to your existing network

Comtrend Powerline pairs are paired in the factory for your convenience and security. However if you need to add more adapters to your existing network you will need to follow some easy steps in order to keep your network secure. The following procedure applies to PowerLine models (DH10, DH10PF, PG902 & PG9020).

**MAKE SURE THAT ALL OF YOUR POWERLINES ARE CONNECTED TO THE MAINS.**

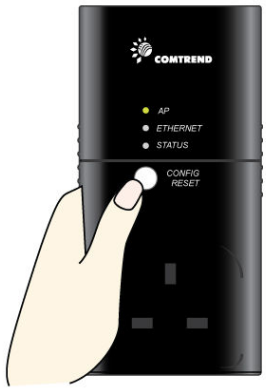
**Step 1:** Identify the current AP (access point) adapter. From your current adapters the one with the AP LED in green will be the AP adapter.

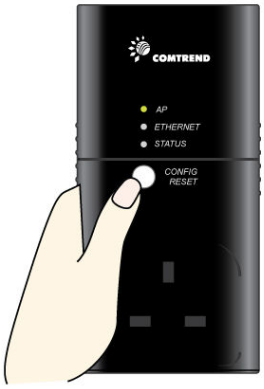


**NOTE:** If you performed a factory reset on the AP adapter (see step 2), it is now an EP adapter. In this case, you will need to assign it as an AP (see FAQ on pg. 8).

**Step 2:** Reset the new Adapter to its factory settings: this is to make sure your new adapter is set as an EP (end point). Press the CONFIG/RESET button for 10 seconds. All LEDs will turn OFF and the STATUS LED will be RED.

**Step 3:** On your AP adapter (Step 1), press the CONFIG/RESET button until the AP LED starts blinking.




**Step 4:** On the NEW EP adapter you are adding to your network (step 2), press the CONFIG/RESET button until the AP LED starts flashing. The NEW EP adapter AP LED will flash 3 times and the STATUS LED will turn ON.

Wait until the AP LED on the AP adapter (step 1) stops blinking.

You have now added your NEW EP adapter to your network.

Repeat the same steps for each new adapter you want to add to your network.

## How to understand the STATUS LED colours

The STATUS LED provides important information that will provide solutions to common questions, such as why a High Definition (HD) movie is not showing or shows with pixels. The STATUS LED indicator will vary its colour depending on the estimated speed of the Powerline connection. The speed is measured in Megabytes Per Second (Mbps).

| Colour | Information |
|---|---|
| RED | The current connection is less than 4Mbps, normal internet activities are possible but the Powerline is unable to transmit either Standard Movies or High Definition (HD) Movies |
| ORANGE | The current connection is greater than 4Mbps and less than 10Mbps, normal internet activities are possible and the network is able to transmit a single Standard Movie but not an HD Movie. |
| GREEN | The current connection is greater than 10Mbps; the Powerline is capable of transmitting Standard and HD Movies as well as normal internet activities. |

**NOTE:** If the HDTV video bandwidth is lower than 10Mbps, it may be possible to stream the video with an ORANGE STATUS LED in some cases.

## Frequently Asked Questions

This Powerline adapter has been designed to be a reliable and easy to use to create or extend an existing home network. However, should you experience any problems, please refer to the list below to aid in troubleshooting.

1. **How do I convert an AP into an EP?**

- Make sure the Powerline adapter is plugged directly into the electrical outlet and that it is powered on.
- Do a factory reset (see Step 2 on pg. 6 for the Factory Reset procedure).

2. **How do I convert an EP into an AP?**

- Make sure the Powerline adapter is plugged directly into the electrical outlet and that it is powered on.
- Press CONFIG/RESET button until its AP/STBY LED starts blinking.
- Wait until configuration period finishes (30 seconds). At that point the adapter has been designated as a Fixed AP with an auto generated Network ID and Encryption key and its AP/STBY LED lights GREEN.

3. **SDTV video is not streaming:**

- Check the STATUS indicator LED in the adapter connected to the STB.
- If the indicator is RED this means that the PLC link is not able to play an SDTV streaming.
- Try to reposition the adapter into another outlet in order to obtain an ORANGE or GREEN indication.
- If the indicator is ORANGE or GREEN, it should now be able to play an SDTV video. Verify this by confirming that the STATUS indicator LED is blinking when the video is running. This means that there is activity in the Ethernet connector.
- If the LED is not blinking, check that the Ethernet cable is correctly connected.
- If the LED is blinking and there is still no video streaming, check the settings in devices connected to the PLC adapters (STB, DSL router, PC, video server, etc.).

4. **There is more than one AP in the network because configuration protocol did not finish correctly:**

- In order to work properly your network can only have one Fixed AP unit. Verify that this is the case by examining the AP/STBY LED for all adapters
- If there is more than one AP, it means that key exchange process has failed.
- Perform a factory reset on the adapter you DO NOT wish to be designated as an AP (see Step 2 on page 6 for the Factory Reset procedure).
- Repeat network configuration procedure again (page 6).
- If the configuration procedure has again failed, it is possible the adapters are using different forms of encryption (crypto mode).
    - To eliminate this as a possibility;
    - perform a factory reset on all adapters
    - choose the adapter you will like to act as an AP (we recommend the one connected to your modem/router)
    - Press CONFIG/RESET button until its AP/STBY LED starts blinking.
    - Wait until configuration period finishes (30 seconds). At that point the adapter has been designated as a Fixed AP with an auto generated Network ID and Encryption key and its AP/STBY LED lights GREEN.
    - Follow the steps on page 10

5. **HDTV video is not streaming:**

- Check the status indicator LED in the adapter connected to the set top box (STB).
- If the indicator is RED or ORANGE this means that the Powerline link is not able to stream HDTV.
- Try to reposition the adapter in another outlet in order to obtain a GREEN indication.
- If the indicator is GREEN, it should now be able to play a HDTV video. Verify this by confirming that the STATUS indicator LED is blinking when the video is running. This means that there is activity in the Ethernet connector.

- If the LED is not blinking check that the Ethernet cables are correctly connected.
- If the LED is blinking and there is still no video streaming, check the settings in devices connected to Powerline adapters (STB, DSL router, PC, video server, etc.).

| **NOTE:** | If the HDTV video bandwidth is lower than 10Mbps, it may be possible to stream the video with an ORANGE STATUS LED in some cases. |
|---|---|

**6. My Powerline Adapters don't fit into the plug socket**

- Your Powerline Adapters might not fit because the sockets are too close to the floor or are in the skirting board.
- The easiest way around this is to use a trailing power strip, and plug the Adapter into the strip. Please make sure that the strip is not an anti-surge adapter strip.

**7. What if the house next door has Powerline Adapters as well?**

- Each pair of Powerline Adapters has its own unique security key. This means that your connection is secure and cannot be confused with anyone else's.

8. **Is it safe to leave the Powerline Adapters on all the time - is there any danger of overheating?**

- Powerline Adapters are CE certified and completely safe to leave plugged in all the time. They may become slightly warm in use - this is perfectly normal. However, you may wish to put them into standby when not in use.

**9. How much power do Powerline Adapters use, and how much do they cost each month in electricity?**

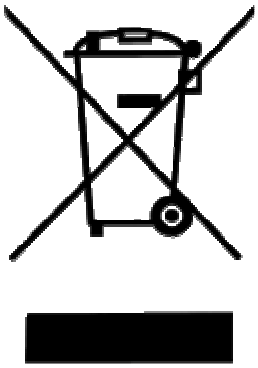
- The PG9020 Adapters use 3.4Watts when in use and 0.84 Watt in standby. Prices vary between electricity suppliers.

**10. What is the best way to check that my Powerline Adapters are working properly?**

- Your Powerline Adapters are set to work together as a pair, and should work perfectly out of the box. The best way to test them is to find a double plug socket, and plug them in next to each other. Often the best place to find a double plug socket is in your kitchen. Alternatively plug them into a trailing extension strip (but not an anti-surge strip).
- When plugged in, after 10-40 seconds, the Powerline Adapters will configure themselves so that each has a green status light, and one of the pair has an orange AP light.
- Both adapters have green status lights
- If the Powerline Adapters don't configure themselves as above, you need to follow the reset procedure.

- When your Powerline Adapters are connected to a device the Ethernet light should light up. When you're using the service the Ethernet light will flash. You may notice that the Status Light on one or both Powerline Adapters changes to red or orange. This isn't something to worry about if you are not having any problems with your connection.

## Product disposal instructions



The symbol shown here and on the product means that the product is classed as Electrical or Electronic Equipment and should not be disposed with other household or commercial waste at the end of its working life.
The Waste of Electrical and Electronic Equipment (WEEE) Directive (2002/96/EC) has been put in place to recycle products using best available recovery and recycling techniques to minimize the impact on the environment, treat any hazardous substances and avoid the increasing landfill.

**Product disposal instructions for residential users**
When you have no further use for it, please remove any batteries and dispose of them and the product as per your local authority's recycling processes. For more information please contact your local authority or the retailer where the product was purchased.

**Product disposal instructions for business users**
Business users should contact their suppliers and check the terms and conditions of the purchase contract and ensure that this product is not mixed with other commercial waste for disposal.

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# EC declaration of conformity

CE

COMTREND

**We, the undersigned,**

**Manufacturer** Comtrend Corporation **Address, City:** Edificio América II, C/Proción, 7: Portal 3: Bajo H; 20823, Madrid, **Country:** Spain **Phone No:** +34 91 799 0403 **VAT No.:** ESN7361005G

**Authorised representative in Europe**: Mr. Harold Fitch, European and South American General Manager **Address, City:** Madrid **Country:** Spain
**Certify and declare under our sole responsibility that the following apparatus:**

**Description:** Powerline Ethernet with mains adaptor **Manufacturer:** Comtrend Corporation **Model:** PowerGrid 9020 **Restrictive use:** For residential and office environment only

**Conforms with the essential requirements of the EMC Directive 2004/108/EC, Low Voltage Directive 2006/95/EC and Ecodesign Directive 2005/32/EC, based on the following specifications applied:**

| **EU Harmonized Standards:** | |
|---|---|
| EN 55022:2006 | Information technology equipment -Radio disturbance characteristics -Limits and methods of measurement |
| EN 55024:1998 + A1:2001 + A2:2003 | Power line communication apparatus and systems used in low-voltage installations in the frequency range 1,6 MHz to 30 MHz |
| EN60950-1:2001 + A11:2004 + CORR:2007 | Information technology equipment – Safety -Part 1: General requirements |
| EN 61000-3-2:2006 | Harmonic currents measurements |
| EN 61000-3-3:1995 + A1:2001 + A2:2005 | Limitation of voltage changes, voltage fluctuations and flicker in public low-voltage supply systems, for equipment with rated current ≦16 A per phase and not subject to conditional connection |
| **Other specifications and Technical Documentation:** | |
| CISPR/I/257/CD | Amendment to CISPR 22: Clarification of its application to telecommunication system on the method of disturbance measurement at ports used for PLC (Power Line Communication) |
| PowerGrid 9020 TCF | Technical Construction File of PowerGrid 9020 ref. PG9020-CT-TCF-0310-v1 |
| EC 1275/2008 | **Energy consumption ecodesign.** |

This Certificate is guaranteed by the following supporting documentation: Business users should contact their suppliers and check the

**-EN60950-1:**2001 + A11:2004 + CORR:2007, issued by ENAC accredited laboratory 190/LE1113- 4 ITACA

-BS1363 Intertek lab Test Report HK09070867-1 issued by Hong Kong Telecommunications Authority (HKTA) accredited laboratory Intertek Testing Services Hong Kong Ltd.

-CISPR I/257/CD Test Report IE_ICEM_COM090401-IN issued by ENAC accredited laboratory 190/LE1113-4 ITACA

-10-01-QAR-005-2 Energy Consumption Compliance Assessment, issued by ETC Taiwan lab.
-Statement of Opinion NB -COM090401 issued by Notify Body NB 2043 – ITACA
and therefore compiles with the essential requirements and provisions of the EMC and LV Directives

**Emission date: 04/03/2010**

Signature

Printed Name: Harold Fitch

Position/Title: General Manager

Product Model: PowerGrid 9020